

## Enclosur of the International Preliminary Examination Report

## CLAIMS:

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Sub B1

1. A glass/plastic composite film, in particular for use in electronic components and devices such as displays, made of a glass film having a thickness of between 10  $\mu\text{m}$  and 500  $\mu\text{m}$  and a polymer layer applied on at least one of its side surfaces with a thickness of between 1  $\mu\text{m}$  and 200  $\mu\text{m}$ , especially between 1  $\mu\text{m}$  and 100  $\mu\text{m}$ , with the polymer layer being applied directly to at least one side surface, characterized in that on at least one side the optical retardation is not more than 20 nm.

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2. A glass/plastic composite film as claimed in claim 1, characterized in that at least one side on its surface shows a waviness of less than 100 nm.

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3. A glass/plastic composite film as claimed in claim 2, characterized in that at least one side shows a roughness  $R_T > 30$  nm.

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4. A glass/plastic composite film as claimed in ~~one of the claims 1 to 3~~, characterized in that both sides show on their surface a waviness of less than 100 nm and a roughness  $R_T$  of less than 30 nm.

5. A glass/plastic composite film as claimed in ~~one of the claims 1 to 4~~, characterized in that the glass thickness is 10 to 400  $\mu\text{m}$ , preferably 10 to 200  $\mu\text{m}$  and more preferably 10 to 100  $\mu\text{m}$ .

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6. A glass/plastic composite film as claimed in ~~one of the claims 1 to 5~~, characterized in that the thickness of the polymer layer is 2 to 100  $\mu\text{m}$ , preferably 2 to 50  $\mu\text{m}$ .

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7. A glass/plastic composite film as claimed in ~~one of the claims 1 to 6~~, characterized in that the film also comprises the polymer layer on at least one edge.

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8. A glass/plastic composite film as claimed in ~~one of the claims 1 to 7~~, characterized in that the polymer layer has a modulus of elasticity of  $< 5,000 \text{ N/mm}^2$ , preferably of  $< 2,600 \text{ N/mm}^2$  and more preferably of  $< 1,500 \text{ N/mm}^2$ .

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9. A glass/plastic composite film as claimed in ~~one of the claims 1 to 8~~, characterized in that the transmission of the glass/plastic composite film is more than 90% of the uncoated glass film and the haziness caused by the polymer coating increases by less than 1%.

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10. A glass/plastic composite film as claimed in ~~one of the claims 1 to 9~~, characterized in that the roughness of the surface is  $R_T \leq 20 \text{ nm}$ , preferably  $\leq 10 \text{ nm}$ , the waviness of the surface is  $\leq 80 \text{ nm}$ , preferably  $\leq 50 \text{ nm}$ , and the optical retardation is not more than 15 nm.

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11. A glass/plastic composite film as claimed in ~~one of the claims 1 to 10~~, characterized in that in permanent use the film is temperature-stable up to  $130^\circ$ , and up to  $140^\circ\text{C}$  in the case of short-term heating, preferably  $180^\circ\text{C}$ , more preferably  $200^\circ\text{C}$ .

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12. A glass/plastic composite film as claimed in ~~one of the claims 1 to 11~~, characterized in that the polymer layer consists of a silicone

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polymer, a sol-gel polymer, a polycarbonate, a polyether sulphone, a polyacrylate, a polyimide, a cyclo-olefine polymer or a polyarylate.

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- 5 13. A glass/plastic composite film as claimed in ~~one of the claims 1 to 12~~, characterized in that the glass film consists of a borosilicate glass, preferably an alkali-free borosilicate glass.
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- 10 14. A method for producing a glass/plastic composite film as claimed in ~~one of the claims 1 to 13~~, with the following steps:
- the production of a glass film of a thickness of 10 to 500  $\mu\text{m}$  in the down-draw process with a drawing speed of 2 to 12 m/s;
  - pretreatment of the glass film surface;
  - direct application of a polymer layer with a thickness of 1 to 200  $\mu\text{m}$  in the liquid phase;
- 15 - serialization of the polymer-coated glass film.
- 20 15. A method for producing a glass/plastic composite film as claimed in ~~one of the claims 1 to 14~~, with the following steps:
- the production of a glass film of a thickness of 10 to 500  $\mu\text{m}$  in the down-draw process with a drawing speed of 2 to 12 m/s;
  - serialization of the glass film;
  - pretreatment of the glass film surface;
  - direct application of a polymer layer with a thickness of 1 to 200  $\mu\text{m}$  in the liquid phase.
- 25 16. A method as claimed in claim 15, characterized in that the application of the polymer layer is performed by spinning or by spray spinning.

17. A method as claimed in claim 14 ~~or 15~~, characterized in that the application of the polymer layer is performed by casting or rolling or spraying or dipping.
18. A method as claimed in ~~one of the claims~~ 14 to 17, characterized in that at least one edge is coated in addition to the side surface.
19. A method as claimed in ~~one of the claims~~ 14 to 18, characterized in that a glass film is produced with a thickness of 10 to 400  $\mu\text{m}$ , preferably 10 to 200  $\mu\text{m}$ , more preferably 10 to 100  $\mu\text{m}$ , in the glass production line in the down-draw process.
20. A method as claimed in ~~one of the claims~~ 14 to 19, characterized in that the coating leads to a polymer layer thickness of 2 to 100  $\mu\text{m}$ , preferably 2 to 50  $\mu\text{m}$ .
21. A method as claimed in ~~one of the claims~~ 14 to 20, characterized in that the surface treatment is performed before the coating as UV radiation in an ozonic atmosphere or as a corona treatment or as flaming.
22. A method as claimed in ~~one of the claims~~ 14 to 21, characterized in that after the coating, the polymer coating is cured with the help of UV radiation and/or is dried under the influence of heat.
23. A method as claimed in ~~one of the claims~~ 14 to 22, characterized in that a silicone polymer, a sol-gel polymer, a polycarbonate, a polyether sulphone, a polyacrylate, a polyimide, a cyclo-olefine copolymer or a polyarylate are applied as a polymer.

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25. The application of the glass/plastic composite film as claimed in ~~one~~  
~~of the claims 1 to 10~~ for the production of electronic components  
 and optoelectronic devices, in particular on the basis of liquid  
 crystals or light-emitting layers.

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